

**To:** Stevenson, Peter[Stevenson.Peter@epa.gov]; Beierle - CDPHE, Rob[robert.beierle@state.co.us]; Will Nabours[Will.Nabours@apexc.com]  
**From:** Steve Annecone[Steve.Annecone@apexc.com]  
**Sent:** Fri 6/9/2017 9:03:05 PM (UTC)  
**Subject:** RE: Wolf Creek Pass Spill path forward

Hi Pete,

We can add MW-5 back into the mix, and it might have been a mistake on our part that it was not sampled in April.

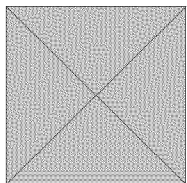
I still think site data, particularly the high dissolved oxygen levels in wetland wells, really supports the option of decommissioning the system now. But it's your call there. We've reached out to USFS regarding requirements for closure on their end, but haven't closed the loop with them. It would be great if you could re-engage them as you say. I suspect there's a few invasive species that will need to be removed.

I like the idea of sampling well MW-1 remotely, but I'm not sure it would be possible via peristaltic pump, as the water is deep and the vacuum achievable at that altitude may not be sufficient to pull water to the surface. That said, there may be other options, including a battery-operated downhole electric pump. Use of passive diffusion bags (PDBs) would lessen the time to sample, but we'd still need wellhead access. We'll keep thinking about these options.

Steve

**Steve Annecone, P.E.**

Principal Engineer



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**From:** Stevenson, Peter [mailto:Stevenson.Peter@epa.gov]

**Sent:** Wednesday, June 07, 2017 2:35 PM

**To:** Steve Annecone <Steve.Annecone@apexc.com>; Beierle - CDPHE, Rob <robert.beierle@state.co.us>; Will Nabours <Will.Nabours@apexc.com>

**Subject:** RE: Wolf Creek Pass Spill path forward

Consider this:

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2017: Sample August and November, please consider adding MW-5 back into the location list, as documentation on benzene levels reaching clean up goals is scant.

2018: Sample May. Pull treatment system if all data supports it. Dry ground would be helpful for this activity. Keep MWs -1A, 2A, 1, 2, 3,4, 5, 6, 7 and T-2 for final clearance sampling.

I will need to re-engage the USFS to determine any requirements from their perspective.

Future: We can discuss sampling going forward some more later, but I would put in a dedicated tygon or Teflon sample line in MW-1 that I could hook up a peristaltic pump to purge and collect samples remotely, negating the need for a lane closure. MW-1 seems to hit highest in May or August, so sampling once or twice a year should suffice. The assumption then would be that MW-1 would act as a surrogate for all other wells, and when it reaches clean up goals a confirmation sampling (or two) of most remaining monitoring wells should be adequate to close out the site. Once we get some feedback from the USFS, petition the State to take over the oversight of the clean up.

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**From:** Steve Annecone [<mailto:Steve.Annecone@apexcoss.com>]

**Sent:** Monday, June 05, 2017 10:46 AM

**To:** Beierle - CDPHE, Rob <[robert.beierle@state.co.us](mailto:robert.beierle@state.co.us)>; Will Nabours <[Will.Nabours@apexcoss.com](mailto:Will.Nabours@apexcoss.com)>

**Cc:** Stevenson, Peter <[Stevenson.Peter@epa.gov](mailto:Stevenson.Peter@epa.gov)>

**Subject:** RE: Wolf Creek Pass Spill path forward

Rob,

Not yet but it probably makes sense for us to meet with both of you. I thought Pete/EPA would ultimately defer to CDPHE regarding cleanup goals and when we've met the closure criteria, but it would be good for us to understand any of your remaining concerns. We've definitely hit the limit of what we can do with our existing remediation system, and overall, hydrocarbons are continuing to degrade naturally. Would it make sense to decommission the system, abandon the treatment and monitor wells in the wetlands, and then allow the wetlands to recover naturally while we conduct long-term monitoring of three or four roadside wells?

Steve

**Steve Annecone, P.E.**

Principal Engineer

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**From:** Beierle - CDPHE, Rob [<mailto:robert.beierle@state.co.us>]

**Sent:** Friday, June 02, 2017 2:53 PM

**To:** Will Nabours <[Will.Nabours@apexc.com](mailto:Will.Nabours@apexc.com)>

**Cc:** Steve Annecone <[Steve.Annecone@apexc.com](mailto:Steve.Annecone@apexc.com)>

**Subject:** Re: Wolf Creek Pass Spill path forward

Will,

Pete Stevenson and the U.S. EPA are the lead regulatory agency regarding the cleanup at Wolf Creek Pass. Have you touched base with him regarding a meeting?

Regards,

Rob

**Robert Beierle**

**Unit Leader**

**Hazardous Waste Corrective Action Unit**

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On Thu, Jun 1, 2017 at 3:30 PM, Will Nabours <[Will.Nabours@apexc.com](mailto:Will.Nabours@apexc.com)> wrote:

Hi Rob,

Steve Annecone and I would like to discuss the path forward for the Wolf Creek Pass Spill site; would you be available at a time tomorrow, June 2<sup>nd</sup>, when we'd be able to discuss the site via tele-conference? In summary, groundwater sampling results continue to show steady declines in dissolved hydrocarbons over time due to bioremediation in the wetlands, chemical oxidation work in the source area, and ongoing natural attenuation. Background dissolved oxygen concentrations remain elevated in wetlands area monitoring wells and have, and will continue to, promote intrinsic bioremediation over time. The bioremediation system has achieved cleanup of the wetlands area to the maximum extent practical. Additionally, dissolved benzene concentrations in samples collected from well MW-1 have been reduced by 82% since monitoring began, and by over 99% in samples collected from well MW-2. That being said, we'd like to discuss approaches for moving site towards closure.

Please let us know when a convenient time would be. Thank you and looking forward to speaking with you!

Will Nabours

**Will Nabours, P.E.**

Engineer

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